

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A device for cooling a fuel cell that adjusts a temperature of the fuel cell to a target set temperature by supplying a coolant, comprising:

an electric conductivity sensor that measures an electric conductivity of the ~~coolant; and~~ coolant;

a temperature sensor that measures a temperature of the ~~coolant;~~
~~wherein~~ coolant; and

a control unit that stores a correlation between the temperature and the electric conductivity of the coolant,

~~the device estimates the electric conductivity~~ the control unit being configured to estimate an electric conductivity at the target set temperature based on the electric conductivity of the coolant, the temperature of the coolant, ~~and~~ and the correlation between the temperature and the conductivity of the coolant, and

the control unit being configured such that based on a correlation between a parameter related to the temperature of the coolant and the electric conductivity of the coolant, when the electric conductivity at the target set temperature exceeds a target electric conductivity range, the control unit controls the parameter related to the temperature of the coolant ~~is controlled~~ so as to maintain the electric conductivity at the target set temperature within the target electric conductivity range.
2. (Original) The device for cooling a fuel cell according to claim 1, wherein the parameter related to the temperature of the coolant is at least one element selected from the group including the temperature of the coolant, a cooling degree of the coolant, a required output of the fuel cell, an operation state of the fuel cell, and an external air temperature.

3. (Previously Presented) The device for cooling a fuel cell according to claim 1, wherein the temperature of the coolant is controlled by changing at least one of the cooling degree of the coolant and the operation state of the fuel cell.

4. (Previously Presented) The device for cooling a fuel cell according to claim 1, further comprising an electric conductivity decreasing device that decreases the electric conductivity of the coolant, wherein

the parameter related to the temperature of the coolant is controlled based on the decrease quantity of the electric conductivity with the electric conductivity decreasing device.

5. (Previously Presented) The device for cooling a fuel cell according to claim 1, wherein the device decreases the target set temperature when the electric conductivity at the target set temperature exceeds the target electric conductivity range.

6. (Previously Presented) The device for cooling a fuel cell according to claim 5, wherein the device increases the target set temperature within a range in which the electric conductivity at the target set temperature does not exceed the target electric conductivity range.

7. (Withdrawn-Currently Amended) A method for cooling a fuel cell by which a temperature of the fuel cell is adjusted to a target set temperature by supplying a coolant, the method comprising the steps of:

measuring a electric conductivity of the coolant;

measuring a temperature of the coolant;

estimating the electric conductivity at the target set temperature based on the electric conductivity of the coolant, the temperature of the coolant, and a stored correlation of the temperature and electric conductivity of the coolant;

controlling a parameter related to the temperature of the coolant and the electric conductivity of the coolant when the electric conductivity at the target set temperature exceeds a target electric conductivity range, so as to maintain the electric conductivity at the target set temperature within the target electric conductivity range; and

decreasing the target set temperature when the electric conductivity at the target set temperature exceeds the target electric conductivity range.

8. (Withdrawn) The method for cooling a fuel cell according to claim 7, further comprising a step of increasing the target set temperature within a range in which the electric conductivity at the target set temperature does not exceed the target electric conductivity range.

9. (Previously Presented) The device for cooling a fuel cell according to claim 2, wherein the temperature of the coolant is controlled by changing at least one of the cooling degree of the coolant and the operation state of the fuel cell.

10. (Previously Presented) The device for cooling a fuel cell according to claim 2, further comprising an electric conductivity decreasing device that decreases the electric conductivity of the coolant, wherein

the parameter related to the temperature of the coolant is controlled based on the decrease quantity of the electric conductivity with the electric conductivity decreasing device.

11. (Previously Presented) The device for cooling a fuel cell according to claim 3, further comprising an electric conductivity decreasing device that decreases the electric conductivity of the coolant, wherein

the parameter related to the temperature of the coolant is controlled based on the decrease quantity of the electric conductivity with the electric conductivity decreasing device.

12. (Previously Presented) The device for cooling a fuel cell according to claim 9, further comprising an electric conductivity decreasing device that decreases the electric conductivity of the coolant, wherein

the parameter related to the temperature of the coolant is controlled based on the decrease quantity of the electric conductivity with the electric conductivity decreasing device.

13. (New) A device for cooling a fuel cell that adjusts a temperature of the fuel cell to a target set temperature by supplying a coolant, comprising:

a control unit, the control unit including a processor and a non-transitory computer-readable storage medium, the non-transitory computer-readable storage medium storing:

a correlation between a temperature of the coolant and an electric conductivity of the coolant; and

instructions for causing the processor to execute processing that:

estimates an electric conductivity at the target set temperature based on the electric conductivity of the coolant, the temperature of the coolant, and the correlation between the temperature and electric conductivity of the coolant; and

instructs the control unit to control a parameter related to the temperature of the coolant so as to maintain the electric conductivity at the target set temperature within a target electric conductivity range, when the electric conductivity at the target set temperature exceeds the target electric conductivity range based on a correlation between the parameter related to the temperature of the coolant and the electric conductivity of the coolant.